



NASA STTR 2016 Phase I Solicitation

T15.02 Aeronautical Communications, Navigation, Surveillance and Information (CNSI) Systems for UAS

Lead Center: GRC

Under the Aeronautics Research Mission Directorate, work will be performed to conduct fundamental, cutting-edge research into new aircraft technologies as well as the integration of new operations concepts and technologies into the Next Generation Air Transportation System (NextGen). Communications, Navigation, Surveillance and Information (CNSI) technology development supports the goals of these research programs in such areas as increasing airspace system capacity and efficiency, improving aviation system safety, and advancing the integration of unmanned aircraft into the national airspace system (NAS). Aviation nationally and globally is being developed upon a new paradigm of digital information transaction, supporting coordination and collaboration between airspace users and service providers based on collection and sharing of information on a much greater scale than ever before. NASA has contributed to this technological advance through the testing of control communications for unmanned aircraft, development of aircraft antennas for high frequency satellite communications, testing and demonstration of secure, high-rate wireless communications for airports, ground and flight testing of air-ground communications channels, and simulation, modeling and analysis of digital air traffic communications. Future research and technology development supports such initiatives as autonomous NAS operations and vehicles, mobile components of system-wide information management, beyond-line-of-sight control communications for unmanned aircraft, and national airspace system-wide performance assessments.

This solicitation seeks innovative approaches to Unmanned Aircraft Systems (UAS) communications for civil aviation in the current and future NAS, including for small UAS (< 55 lbs).

Desired focus areas include:

- CNSI operations technologies supporting unmanned vehicle integration into the national and global airspace systems, including advanced civil aviation air traffic control systems (including UAV traffic management), air traffic management, and airspace operations.
- CNSI system concepts, architectures and networks.
- Aeronautical CNSI components and subsystems for operation in civil aviation bands. These designs must account for all applicable aircraft certification and airworthiness requirements.
- Beyond line of sight communications technologies for UAS.